Nitrogenous—Nitrate of soda, nitrate of lime, sulphate of ammonia, and cyanamide (nitrolim).

Phosphatic—Superphosphate, basic slag, mineral phosphate, guano, and bones.

Potassic—Sulphate of potash, muriate of potash, and kainit.

Agricultural chemists have worked out the proper combinations for particular crops, and obtained many striking results.

Without using any farmyard manure they have maintained, and even increased, the yield of corn crops, fodder crops, and hay; and in the two latter cases there has been an increase, not only in yield, but also in feeding value per ton. In spite of seventy years' experience there is still much to be learned about the proper use of artificial fertilisers, and they may still bring about even fuller yields from the land.

The yield of corn crops can be increased by artificial fertilisers, but not indefinitely; the limit is set by the strength of the straw. As the plant becomes bigger and bigger, so the strain on the straw increases, until finally, when the plant is some 5 ft. high, it cannot stand up against the wind, but is blown down.

Little is known about the strength of straw. It is a property inherent in the plant itself, and differs in the different varieties. It is affected by the season, being greater in some years than in others. It is affected also by soil conditions. At present the strength of the straw is the wall against which the agricultural improver is pulled up. The problem can undoubtedly be solved, and the plant-breeder and soil-investigator between them may reasonably hope to find the solution.

Another great effect of artificial fertilisers which has not yet been fully exploited is to mitigate the ill-effects of adverse climatic conditions. Phosphates help to counteract the harmful influence of cold, wet weather; potassic fertilisers help the plant in dry conditions. The combination of a suitable variety with an appropriate scheme of manuring is capable of bringing about considerable improvement in crop production.

A demonstration with the oat crop on these lines was arranged last year in a wet moorland district, and the crops when seen in August were as follows:

	Estimated crop Bushels.	
Local variety, local treatment ...	27	Harvest late
,, ,, phosphatic manuring	45–54	,, earlier
Special variety "Yielder," phosphatic manuring	54–66	,, earlier, stands up well

The potato crop is governed by the same general principles as corn crops. It furnishes more food per acre than any other crop, but it is much more expensive to produce, and therefore is grown chiefly in districts where the conditions are particularly well suited to it: the Fens, Lincolnshire, the plains of Lancashire, and the Lothians, though smaller quantities are grown in almost every part of the country. The production and consumption are as follows:—

Potatoes: Annual Production and Consumption.

	Production					
	In England and Wales			In United Kingdom		
Consumption	Pre-war 1914	1918	1919	Pre-war 1914	1918	1919
6·5	3·0	4·2	2·7	7·5	9·2	6·3
Millions of acres	0·46	0·63	0·48	1·20	1·51	1·22

We are thus self-supporting in the matter of potatoes. We do, however, import about half a million tons per annum of early and other potatoes; we also export seed potatoes and some for food—in all, about one million tons per annum.

(*To be continued.*)

Notes.

We regret to announce the death, on April 3, at eighty-four years of age, of Capt. E. W. Creak, C.B., F.R.S., formerly Superintendent of Compasses, Hydrographic Department, Admiralty.

The following names were inadvertently omitted from the list of Commanders of the Order of the British Empire (C.B.E.) announced in last week's issue of Nature:—Mr. C. E. Fagan, secretary, British Museum (Natural History); Sir W. H. Hadow, Vice-Chancellor of the University of Sheffield; and Mr. A. R. Hinks, F.R.S., secretary of the Royal Geographical Society.

Lord Sudeley has given notice of the following motion which he proposes to bring before the House of Lords on April 21:—"To call attention to the decision of his Majesty's Government to discontinue the appointment of an official guide at Kew Royal Botanical Gardens; and to move to resolve, That the Government be requested to carry out at these gardens the system of free popular guide-lectures on the same plan as adopted with marked success in the Government museum and picture galleries of the Metropolis, and to take such further steps as after inquiry may be found desirable for developing the resources of these gardens to the fullest extent in the interests of scientific and popular education, together with the recreation of the public."

The Right Hon. F. D. Acland recently asked in the House of Commons whether the Lord President of the Council "is aware that dissatisfaction is being expressed by scientific workers with the appointment of a man without scientific qualifications as director of research to the Glass Research Association; whether, as the Department of Scientific and Industrial Research provides four-fifths of the funds of the association, the Department was consulted before the appointment was made; and does he approve of the appointment as giving a guarantee that State funds devoted to scientific research will be wisely expended?" Mr. Fisher replied to the question, and his answer included the following statements:—(1) The successful candidate has a wide and successful experience of scientific research into the problems of the glass industry, and is considered by the association to be the man best suited for organising and directing the research needed by it. (2) The responsibility for the selection of a director of research rests in each case with the research association concerned, and not with the Department of Scientific and Industrial Research, which has no power to approve or disapprove the appointment of any individual. (3) The Department guarantees three-quarters of the expenditure of the research association up to a certain limit, but payment of the grant is conditional, among other things, on the approval by the Department of the programme of research and of the estimate of expenditure thereon. (4) The Advisory Council of the Department, after considering all the relevant circumstances with great care, recommended the approval of the expenditure involved in this director's appointment.

MR. B. D. PORRITT has been appointed director of research by the Research Association of British Rubber and Tyre Manufacturers.

THE annual meeting of the Iron and Steel Institute will be held at the Institution of Civil Engineers, Westminster, on Thursday and Friday, May 6 and 7, and will be adjourned from May 7 to May 14, when a final session will be held at the Mappin Hall, Sheffield. On the opening day the retiring president, Mr. Eugène Schneider, will induct into the chair the president-elect, Dr. J. E. Stead, the Bessemer gold medal for 1920 will be presented to Mr. Harry Brearley, and the president will deliver his inaugural address. The autumn meeting of the institute will open at Cardiff on September 22.

THE World Trade Club, of San Francisco, which is conducting an active propaganda in favour of the compulsory adoption of the metric system of weights and measures, both in this country and in the United States, has issued under the title "Metric Literature Clues" a list of references to books, pamphlets, documents, and magazine articles on standardisation in terms of metric units. Although far from being a complete bibliography of the metric system, it includes most of the best-known works on the subject, and contains a fairly full list of the publications of the United States Government and of the Bureau of Standards. In some cases the title of a book or article is followed by a brief summary of its contents, sufficient to indicate to those interested in weights and measures whether it is worth while consulting the work in question. This is the most practical and useful publication of the World Trade Club with regard to the metric system that has yet come to our notice.

AT a meeting of the Association of Economic Biologists held on March 24 the following papers were read: (1) Mr. D. W. Cutler, "The Relation of Protozoa to Soil Problems"; (2) Mr. J. F. Martley, "The Resin-Galls of the Wood of the Sitka Spruce (*Picea sitchensis*)"; (3) Dr. W. Lawrence Balls, "The Nature and Scope of Botanical Research in the Cotton Industry"; (4) Dr. M. C. Rayner, "The Calcifuge Habit in Ling (*Calluna vulgaris*) and other Ericaceous Plants"; (5) Dr. H. Wormald, "Shoot Wilt of Plum Trees." Perhaps the outstanding feature of the meeting, emphasised alike in papers and discussion, was the necessity of pure research as a basis for all economic applications of biology. Not only is it impossible to conduct investigations into any applied aspect of a biological problem in which at the same time equal attention is not given to the more fundamental considerations, but more usually it is also not possible to separate the economic from the pure issues. A further point of importance, arising particularly in the discussion on Dr. Balls's paper, is the great shortage in this country of young botanists competent to undertake research on industrial problems. With the expected development of research associations and the partial recognition by manufacturers of the vital place of the botanist in industry, this factor will become increasingly apparent and be a serious menace to progress.

THE Port Erin Biological Station will be occupied during the Easter vacation (March 20 to April 20) by nine or ten professors, each with a group of senior students, including Profs. Doncaster, Harvey-Gibson, Johnstone, and Herdman (Liverpool), Prof. Gamble (Birmingham), Dr. Tattersall (Manchester), Mr. Douglas Laurie (Aberystwyth), Prof. Benjamin Moore (London), Prof. Cole (Reading), Prof. Stephenson (Lahore), and Prof. Dakin (Western Australia). There are also groups of other post-graduate workers and senior students from Cambridge, Nottingham, Liverpool, and other centres, as well as a large botany class in the earlier part of the vacation, to be followed by a zoology class later. The laboratory accommodation is strained to the utmost capacity, and additions to both building and staff are urgently required. The usual excursions for shore-collecting and plankton work and dredging are being arranged, and the fish-hatching is in full swing. The season is an early one at sea. The phyto-plankton has consisted for the last ten days of March mainly of Coscinodiscus and Biddulphia, and the plaice in the spawning-pond have produced fertilised eggs at least a month earlier than usual—the first hatched larvæ were noticed on February 9—and herring are being caught each night in the bay. The Bill transferring the biological station and fish hatchery from the Manx Government to the Oceanography Department of the University of Liverpool has now passed through the House of Keys, and the University takes over the control of the institution and the work as from April 1 last. The director wishes it to be known that this makes no change in the use of the biological station by researchers from other universities.

THE Ministry of Agriculture and Fisheries last year purchased an estate of more than 1500 acres of typical heath-land at Methwold, in Norfolk. This estate is to be a National Demonstration Farm, and one of the chief objects for its existence is to show what can be obtained from poor heath-land by the adoption of good husbandry methods. The Weekly Service for March 20 from the Ministry of Agriculture gives a short account of the work to be undertaken at this farm. Two hundred acres of the estate have been reclaimed from bracken land, so that at the present time 1043 acres are under arable cultivation, 43 acres under grass, and 441 acres are waste heath. The chief part of the scheme will be the building up and improvement of the land by chalking and by the addition of organic matter. Tobacco-growing on a comparatively large scale will also be a feature of the cultivation. By encouraging the growing of this crop the Ministry hope to supplement the experimental work carried out during the past six years by the British Tobacco Growers' Society, Ltd., and also to assist those smallholders in the neighbourhood who may be inclined to try tobacco-growing when there is a central station at hand to supply the necessary information and to provide for the treatment of the crop. The scheme also includes stock-rearing, poultry-keeping, and pig breeding and rearing on the open-air system. The result should prove very valuable both for large-scale farmers and for smallholders, since the fields are of a good size and well adapted to the use of implements of a large, up-to-date form, while the light and early character of the land should render it specially suitable for small arable dairy holdings.

THE revival of Oriental research is happily marked by the reappearance of Prof. Flinders Petrie's admirable journal, *Ancient Egypt*. Great changes have occurred since the outbreak of hostilities. In Egypt the main actors are gone—Sir Gaston Maspero, his son Jean Maspero, Legrain, and Barsanti. On the English side the losses have been equally severe—Sir A. Ruffer, H. Thompson, I. Dixon, and K. T. Frost, all victims of the war; and at home the early death of Prof. Leonard King has left history and archæology crippled. But, so far as was possible, work has gone on, particularly under the new conditions in Palestine, where a school of archæology, under the superintendence of Prof. Garstang, is being founded. The British School in Egypt is starting work with a large staff, and in the United States, under Prof. Breasted, the Oriental Institute of the Chicago University has been opened. But funds are badly wanted both in Egypt and in Palestine, and though this is an unfavourable time for such an appeal, there is good hope that British archæologists will provide the necessary assistance.

IN the *Museum Journal* (vol. x., No. 3, September, 1919) Mr. H. V. Hall discusses the question of African art. So much has been said, Mr. Hall remarks, about the uniformity of African culture that the variety which exists tends sometimes to be overlooked. The people of eastern and southern Africa are chiefly interested in the products of the animal, those of central and western Africa in the products of the vegetable, kingdom. Speaking broadly, the region east of the lakes and south of the Zambezi-Congo watershed is the home of pastoral tribes, and the Congo and the Lower Niger races practise agriculture. Hence the latter have more leisure to devote to artwork. The question of foreign influence on the negro is of great importance. There are at least four routes from the north and north-west by which the dark heart of the continent can be reached. A growing mass of evidence points to the conclusion that, even in historic times, these routes have never been quite barred to civilising influences; especially in the expansion of old Egypt the solution of many problems of culture apparently indigenous in Central Africa must be sought.

A COMMITTEE appointed by the Royal Anthropological Institute is engaged in collecting information regarding megalithic monuments. As an example of the scientific method of conducting such a survey, Messrs. J. S. Wilson and G. A. Garfitt, in the March issue of *Man*, supply a map of the Eyam Moor circle in Derbyshire. This work is important in connection with Sir Norman Lockyer's investigations. "In the survey of the Eyam Moor circle several large stones were noted on the near horizon towards the N.E. and E. The path of the sun at sunrise for the latitude of the circle, after making allowances for refraction, was calculated for different declinations of the sun and plotted on the chart. It will be seen that the position of prominent stones plotted on the diagram appears to mark the position of sunrise at midsummer and at the equinox. On the diagram the position of sunrise is shown for the present obliquity of the ecliptic, or sun's apparent declination of 23° 27′, also for an obliquity of 23° 57′, which, according to the estimates of astronomers, would have been correct 2000 years before the Christian era. The small difference in the position of the sun indicates the difficulty of fixing the age of a monument by this means."

THE Department of Agriculture, Federated Malay States, in view of the necessity for an increased local production of foodstuffs, has issued a special Bulletin (No. 30) on "Food Production in Malaya," compiled by Mr. F. G. Spring and Mr. J. N. Milsum. The booklet contains 112 pages and 12 plates, costs one dollar, and brings together a large amount of useful information. It includes sections on seasons and rainfall, types of land (whether coastal or inland), soils, tillage, agricultural machinery, rotation of crops, manures, and insect pests and other diseases. Suitable cereal, pulse, and root crops are described, and their cultivation, harvesting, yield, and economic uses considered in some detail. The principal cereals are ragi (*Eleusine coracana*) and rice; various millets and sorghum form subsidiary crops; the chief pulses are green and black gram, cow-pea, and the ground-nut; and the chief root-crops sweet potato, yams, and manihot (tapioca).

A SYSTEMATIC enumeration of the palms of the Philippines is given by Dr. O. Beccari in the *Philippine Journal of Science* (vol. xiv., No. 3). One hundred and twenty species are at present known to be indigenous, which, with the exception of about a dozen species of relatively wide geographic distribution, are endemic forms. In discussing the relationships of the palm-flora, Dr. Beccari concludes that the Philippine species have in great measure originated in the archipelago, but their phylogeny may be traced to species growing chiefly in Borneo, Celebes, the Moluccas, and Indo-China, excluding about a dozen species which, possessing adaptations for easy dissemination, have a rather wide distribution. A small Polynesian element is represented by Adonidia, the only genus peculiar to the archipelago, and Heterospathe. In the Philippines a few large genera have given rise to numerous species, whereas in Polynesia monotypic or oligotypic genera are numerous, and no genus contains a great number of species.

THE *Meteorological Magazine* for March gives a short notice of the work of the International Meteorological Conference held in Paris in October last, taken from the account of the conference published in Paris by the Bureau Central Météorologique. Further details will be welcomed when they are published by the meteorological authorities in our own country. The preceding meeting of the body was held at Innsbruck in 1905, so that much advance in the science had to be reported and new methods of working arranged for, especially with regard to aviation. The magazine contains a reproduction of a photograph of the members of the conference.

THE Meteorological Office chart of the North Atlantic Ocean for February contains some notes on the origin and distribution of ice in these waters, and some account of the ice patrol of the United States Government which was resumed in 1919 after several years' interruption during the war. Two coastguard cutters have been detailed for the purpose of locating icebergs and pack-ice in the vicinity of trans-Atlantic steamship routes. During the months of April, May, and June the two vessels alternate on patrol, each taking fifteen days in the ice region, exclusive of the time taken in going to and from Boston for coal and supplies. Movements of ice are reported by wireless at fixed hours daily. At 6 p.m. (75th meridian time) ice information is sent broadcast with a 600-metre wave-length. The message is repeated three times. At 6.15 p.m. the same information is sent out, using a 300-metre wave-length. At 4 a.m. a message defining the native and southern limits of the ice is sent to the New York Hydrographic Office. Ice information is also sent at any hour to any ship with which the patrol vessel can communicate. It will be recalled that this is the work which was initiated by the *Scotia* subsequent to the loss of the *Titanic*. The chart also bears an interesting map showing the drifts on the east coast of Greenland, in Baffin Bay, and in Davis Strait of various ships that have been imprisoned in the ice, and of castaway crews during the last hundred years. The March chart gives an account of the relation of the North Atlantic ice to currents and fogs.

CHERRAPUNJI, in the Khasi Hills in India, is often cited as having the greatest known annual rainfall. According to the Indian Meteorological Department, the mean annual rainfall there is 426 in. The greatest precipitation is said to have occurred in 1861, when a rainfall of 905 in. was recorded, though doubt has been expressed as to the accuracy of this record. It appears, however, that the Cherrapunji rainfall is surpassed by records on the mountains in the Hawaiian islands. Thus Mount Waialeale is the peak (5080 ft.) of the Island of Kauai, but is inaccessible except to the most expert mountaineers. On this account it was very difficult to maintain the station, and the record has finally had to be discontinued. According to the *Monthly Weather Review* (U.S. Dept. of Agric.), vol. xlvii., No. 5, during the periods August 2, 1911–March 26, 1914 and May 31, 1915–August 13, 1917, a total of 1782 days, there was recorded on Mount Waialeale a total precipitation of 2325 in., or an average of 1·3047 in. per day. In a 365-day year this would amount to an annual precipitation of about 476 in. No records were obtained during the years 1914 and 1918, but these years were considered the wettest since the local Weather Bureau Office was established in the Hawaiian islands. Comparative estimates from trustworthy records obtained at near-by stations indicated that the rainfall at Waialeale must have exceeded 600 in. From May 21, 1915–May 30, 1916, the recorded rainfall of Mount Waialeale was 561 in. The Hawaiian islands are known for other very damp spots. Thus Puu Kukui, 5000 ft., on the Island of Maui, had a seven-year average of 369 in. (maximum 562 in. in 1918). On the Island of Hawaii, at a certain spot of 4000-ft. elevation, the rainfall in 1914 amounted to 504 in. At at least a dozen other spots, all more than 1000-ft. elevation, the rainfall in each of the years 1914 and 1918 exceeded 350 in.

TECHNOLOGIC Paper No. 123, by Mr. D. W. Kessler, of the Bureau of Standards, Washington, is devoted to the tests of the physical and chemical properties of fifty of the commercial marbles of the United States. Marble has been selected as the first stone to be tested, but the whole of the deposits of stone in the country are to come under test in course of time in order to provide the knowledge required by architects in designing structures. The tests are of tensile and compression strengths, specific gravity, porosity, absorption of water, effect of freezing, chemical composition, electrical resistivity, expansion with heat, and liability to warping. The trade name and origin of each sample are given, and the tabulated results of the tests fill twenty pages. The properties of the samples differ widely, although the specific gravities do not differ more than about 5 per cent. from each other. On heating, each sample expands, and on afterwards cooling fails to regain its original dimensions. In consequence of this, marble subjected to frequent heating and cooling is liable to warp.

SCIENTIFIC Paper 352 of the Bureau of Standards, Washington, gives the results of the measurements of the expansion of forty samples of porcelain, about the same number of samples of bakelite and similar materials, and about a dozen samples of marble and limestone, made by Messrs. W. H. Souder and P. Hidnert, of the Bureau. The samples were in the form of rods 30 cm. long and 1 cm. square section, and were heated in a horizontal electric furnace. The expansions were measured by a pair of microscopes mounted on a bar of invar. For the porcelain samples the coefficients per degree Centigrade between 0° C. and 200° C. vary from 2 to 20 millionths, according to the composition, and between 200° C. and 400° C. from 3 to 11 millionths. Beryl porcelains have the smallest coefficients. For bakelite and similar materials no values can be given, as there is so much contraction on again bringing the material to its original temperature. The marbles up to 100° C. have coefficients between 5 and 15×10^{-4}, and at higher temperatures larger values. On cooling to their original temperature they show a permanent expansion. When cooled to −80° C. marble expands to nearly the same extent as when heated to 80° C., so that it has its maximum density in the neighbourhood of 0° C.

THE Science Reports of the University of Sendai, Japan, for December, 1919, contain a paper by Mr. S. Konno on the heat conductivities of metals below and above their melting points. The metals were tested in the form of circular discs about 2 cm. thick and 2·5 cm. in diameter enclosed in a porcelain tube between iron cylinders of the same diameter. In the upper iron cylinder heat was generated by a measured electric current. The fall of temperature through the disc was determined by means of thermo-couples. For tin, lead, zinc, and aluminium the heat conductivity decreases gradually up to the melting point. At the melting point the conductivity decreases abruptly, but in the liquid state its rate of decrease with increase of temperature is slight. Bismuth increases in conductivity on melting, but change of temperature has little effect on the conductivity in either the liquid or the solid state. Antimony has its maximum conductivity at the melting point. In all cases the electrical and heat conductivities change in the same direction on melting, but neither above nor below the melting point does their quotient agree with electronic theories.

THE trouble of working gelatine plates under tropical conditions seems at last to have been overcome. In the Journal of the Royal Photographic Society for March, Mr. A. P. Agnew, of Messrs. Ilford, Ltd., describes the "Ilford tropical hardener" that is now supplied by Messrs. Johnson and Sons. Mr. Agnew found that a "quite weak solution of formalin" became very effective when certain salts were dissolved in the solution. Many sodium salts were found useful, while potassium and magnesium salts are not so effective, and ammonium salts are unsuitable. Some salts have no effect, while chlorides, bromides, and nitrates in general have an opposite action—that is, they soften the gelatine. The exposed plate is put into the suitably diluted hardening solution for three minutes, then rinsed and developed, etc., as usual. Plates so treated at temperatures varying from 100° to more than 140° F., then fixed in a plain hypo solution at 40° F., and finally washed for two hours at more than 100° F. remained firm and did not even show signs of reticulation. Such trying conditions as these would never occur in practical work.

A PHOTOGRAPHIC developing agent must be able to reduce silver bromide that has been changed into the developable condition, as by exposure to light, while under the same conditions it is unable to reduce silver bromide that has not been so changed. There are many reducing agents that make no distinction between these two states of silver bromide. Some twenty years ago Messrs. A. and L. Lumière found certain details of chemical constitution that appear to confer developing power, and since then they and others have extended the investigation. In the *British Journal of Photography* for March 26 there appears a translation of a paper by Dr. Seyewetz (of Lumière's) in which the author summarises our present knowledge of this matter. Knowing the necessary constitution, a very large number of developers have been introduced and actually put upon the market, but the greater number have commercially disappeared, because in some way or other they were inconvenient to use. Dr. Seyewetz says that it is improbable that new developers will displace those now in common use. As in the case of dyes, it seems difficult to make sensational discoveries, and there is so far no indication of the direction in which to seek for new developers that would prove acceptable, as, for example, by permitting a reduction in the period of exposure.

BESIDES the paper on H.M.S. *Hood*, read at the recent meeting of the Institution of Naval Architects by Sir Eustace d'Eyncourt, there are important articles in the *Engineer* and *Engineering* for March 26 dealing with this ship. The building was commenced in April, 1916, at the Clydebank yard of Messrs. John Brown and Co., Ltd., the first of the main belt armour-plates (32 tons each) reached the yard in June, 1918, the ship was launched on August 22, 1918, and the fitting out was completed in January of this year, when the huge ship passed down the Clyde to the open sea. On the trial trips the turbines developed 157,000 shaft-horse-power, the speed attained being 32 knots. The overall length is 860 ft., the extreme breadth 104 ft., the mean load draught 28·5 ft., and the displacement at load draught 41,200 tons. The hull is fitted with a bulge or blister for securing the ship against effective attack by torpedo. The armour ranges from 12 in. thick amidships to 5 in. aft. The deck over the magazines is 3 in. thick. There are eight 15-in. guns, all on the middle line, each pair being mounted in an armoured barbette. The secondary armament consists of twelve 5·5-in. guns, and there are four 4-in. anti-aircraft guns mounted on the superstructure. The ship is fitted with six torpedo tubes for 21-in. torpedoes. There are eight electric generators, four of which are driven by reciprocating engines, two by geared high-speed impulse turbines, and two by eight-cylinder Diesel oil engines. About 360 electromotors are installed, ranging from ¼ to 140 brake-horse-power.

SIR ALFRED EWING is bringing out almost immediately, through the Cambridge University Press, a treatise on "Thermodynamics for Engineers," in which the author aims at making readers familiar with the physical bearing of the fundamental ideas of the subject by means of an elementary introduction and by dealing with practical problems in the theory of heat-engines and of refrigeration. A more mathematical treatment of general thermodynamic relations follows. There will also be an appendix sketching in outline the molecular theory of gases, with special reference to internal energy and specific heat. Another book on the list of the Cambridge University Press is by Prof. A. S. Eddington, entitled "Space, Time, and Gravitation." It is promised for the coming summer.

A FORTHCOMING addition to Sir Edward Thorpe's series of Monographs on Industrial Chemistry is of current interest, seeing that it will treat of "The Manufacture of Sugar from the Cane and Beet." It will be by T. H. P. Heriot, of the Royal Technical College, Glasgow, and give special attention to the principles underlying factory operations.

ERRATUM.—On p. 138 of NATURE of April 1, col. 1, line 15 from the bottom of the page, *bx* should be $bx^{\frac{3}{2}}$ in the equation $y = ax^{\frac{1}{2}} + bx^{\frac{3}{2}}$. The fractional index was broken during paging of the issue.